[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Aviation Rulemaking Advisory Committee - New Task

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of a new task assignment for the Aviation Rulemaking Advisory Committee.

SUMMARY: The FAA assigned the Aviation Rulemaking Advisory Committee (ARAC) a new task to provide recommendations regarding bird strike protection rulemaking, policy, and guidance for normal category rotorcraft and to provide recommendations to enhance the existing bird strike protection standards for transport category rotorcraft. The FAA amended its regulations to incorporate bird strike protection rules for transport category rotorcraft in 1996. Data shows an increase in the bird population and weight has resulted in an increase in bird strikes with both normal category rotorcraft and transport category rotorcraft. The increase in bird strikes has led to more frequent bird penetration into the cockpit and cabin areas, elevating the risk of potential serious injuries or fatalities to occupants. Direct bird impact to the pilot has led to partial or complete pilot incapacitation in numerous cases, increasing the risk of fatalities.

This notice informs the public of the new ARAC activity and solicits membership for the Rotorcraft Bird Strike Working Group.

FOR FURTHER INFORMATION CONTACT: Gary B. Roach, Federal Aviation Administration, 10101 Hillwood Parkway, Fort Worth, TX, 76177, Gary.B.Roach@faa.gov, phone number 817-222-5110, facsimile number 817-222-5961.

SUPPLEMENTARY INFORMATION:

ARAC Acceptance of Task

As a result of the March 23, 2016, ARAC meeting, the FAA assigned and ARAC accepted this task establishing the Rotorcraft Bird Strike Working Group. The Rotorcraft Bird Strike Working Group will serve as staff to the ARAC and provide advice and recommendations on the assigned task. The ARAC will review and accept the recommendation report and will submit it to the FAA.

Background

The FAA established the ARAC to provide information, advice, and recommendations on aviation-related issues that could result in rulemaking, to the FAA Administrator, through the Associate Administrator of Aviation Safety.

In 1996, a bird strike protection rule (14 CFR §29.631) was adopted requiring that transport category rotorcraft be designed to ensure continued safe flight and landing (for Category A) or safe landing (for Category B) following an impact with a 2.2-pound bird. At that time, bird strike protection was not adopted for normal category rotorcraft. As of 2015, normal category rotorcraft comprise over 90% of rotorcraft operating in the U.S. The data from the FAA's Wildlife Strike Database indicates about 75% of reported bird strikes from 1990-2013 were with normal category rotorcraft. These percentages suggest that the absence of bird strike protective requirements for normal category rotorcraft results in increased risk for the majority of U.S. rotorcraft.

Further analysis of rotorcraft data from the FAA's Wildlife Strike Database indicates a 68% increase in bird strikes since 2009 and more than a 700% increase since the early 2000s. In raw numbers, the percentages translate from around 25 reports of rotorcraft bird strikes per year

in the early 2000s, to 121 strikes in 2009, to 204 strikes in 2013. Using rotorcraft flight hours to perform a rate-based analysis, reported bird strikes increased 49% in the five year period from 2010 to 2014 (3.99 per 100,000 flight hours to 5.95 per 100,000 flight hours). Better event reporting accounts for some of this increase, but the rapid escalation goes beyond reporting improvements alone. One conjecture is the increase may be caused by the growing population of birds in general, a growing population of larger birds, quieter aircraft, and an increase in the number of rotorcraft operations.

In addition to the increased frequency of bird strikes, the FAA has observed increased strikes to the rotorcraft windscreen area with a force of impact that has directly endangered occupants and elevated the risk to safe rotorcraft operations. Bird penetration into the cockpit and cabin areas has become increasingly common, elevating the probability of potential serious injuries or fatalities to occupants. Moreover, direct bird impact to the pilot has led to partial or complete pilot incapacitation in numerous cases, often causing an increased risk for loss of control of the rotorcraft and fatalities. The typical scenario is that the bird strikes and shatters a portion of the front windscreen. The bird's remains, as well as damaged portions of the rotorcraft (such as the windscreen), either hit the pilot in the head, neck, or upper torso, or proceed through the cockpit to strike the passengers or crew.

These recent observations reinforce previous findings from the study, Bird Strikes to Civil Helicopters in the United States, 1990-2005 (2006), by Cleary, Dolbeer, and Wright, based on 15 years of data from the FAA's National Wildlife Database. The study concluded that: (1) helicopters were significantly more likely to be damaged by bird strikes than airplanes, (2) windshields on helicopters were more frequently struck and damaged than windshields on

airplanes, and (3) helicopter bird strikes were more likely to lead to injuries to crew or passengers than airplane bird strikes. The NTSB referenced these same findings in its accident report of a 2009 fatal rotorcraft accident in Morgan City, LA, where a bird strike was determined to be the probable cause of the accident (NTSB Aircraft Accident Report No. CEN09MA117).

Some bird strike events where the bird penetrates the cockpit and cabin have received less attention either because the damage was limited to the windscreen or because the injury to the crew and passengers was minor. However, a superficial examination of the rotorcraft damage and occupant injury levels is misleading. The FAA has found that most of these cases had less to do with the sufficiency of aircraft design and equipage, and more to do with the crew's personal protective gear—such as helmets—that mitigated the potential event severity. Other cases of low severity are the result of fortuitous circumstance. One specific example occurred during a March 2015 police operation in Dallas, Texas, where a bird penetrated the cockpit and struck the pilot, who was not wearing a helmet. The pilot was incapacitated by the impact and—under ordinary circumstances—the event would likely have led to a fatal outcome from loss of rotorcraft control. However, the left seat occupant happened to be a rated helicopter pilot, something that was not typical for the police operation being conducted. The left seat occupant then assumed control of the rotorcraft and landed without incident. The result was an event with a low-severity outcome, but the underlying lesson from the relatively benign consequence cannot be dismissed.

While the absence of any bird strike requirements for normal category rotorcraft must be addressed, data shows that bird strikes with transport category rotorcraft are a growing concern, especially encounters with larger birds. Transport category rotorcraft are more likely to spend extended time in the en route phase of flight and fly at higher altitudes. While the higher altitude

would appear to reduce the probability of encountering bird strike, data shows an increased altitude does not mitigate the severity of damage when a bird strike occurs. A United States Department of Agriculture (USDA) study found that, of the 32 damaging strikes that occurred to U.S. rotorcraft in 2014, 72% of those occurred more than 500 feet above ground level. The study opined that the more severe damage was likely attributable to the higher speed of the rotorcraft during the en route phase of flight. The increased exposure of transport category rotorcraft in this environment suggests the existing 2.2-pound bird strike requirement may not be adequate.

Whether normal category or transport category, the unique operating profile of a helicopter leads to a different exposure to bird strike risk than does fixed-wing aircraft. The study, *Wildlife strikes to civil helicopters in the US, 1990-2011* (2013) by Washburn, Cisar, and Default, discusses some of the differences. It concluded that, unlike with fixed-wing aircraft, helicopter bird strikes occur with greatest frequency during the en route phase of flight and in the off-airfield environment. It credits bird strikes that occur in the off-airfield environment as accounting for the majority of bird strike-related human injuries and fatalities for helicopters. Since helicopters operate at much lower altitudes than fixed-wing aircraft, the exposure to the risk of a bird strike is not limited to the departure and arrival phases of flight, but instead remains for the duration of the flight profile.

The Task

The Rotorcraft Bird Strike Working Group will provide advice and recommendations to the ARAC on bird strike protection rulemaking, policy, and guidance for parts 27 and 29. The Rotorcraft Bird Strike Working Group is tasked to:

1. For normal category rotorcraft, specifically advise and make written recommendations on how to incorporate bird strike protection requirements into the part 27 airworthiness standards for newly type certificated rotorcraft.
2. For normal category rotorcraft, specifically advise and make written recommendations on how the bird strike protection requirements in Task 1 should be made effective via § 27.2 for newly manufactured rotorcraft.
3. For transport category rotorcraft, specifically advise and make written recommendations on how to enhance the § 29.631 bird strike protection airworthiness standard in light of increases in bird weight and increased exposure to bird strikes for newly type certificated rotorcraft.
4. For transport category rotorcraft, specifically advise and make written recommendations on how the bird strike protection requirements in Task 3 should be made effective via § 29.2 for newly manufactured rotorcraft.
5. For normal and transport category rotorcraft, specifically advise and make written recommendations on incorporating rotorcraft bird strike protection improvements and standards into the existing rotorcraft fleet.
6. For Tasks 1 through 5, consider existing non-traditional bird strike protection technology, including the use of aircraft flight manual limitations (such as requiring airspeed limitations at lower altitudes), when making the recommendations. These considerations must include: an evaluation of the effectiveness of such technology, assumptions used as part of that evaluation, validation of those assumptions, and any procedures to be used for operation with the technology or with the aircraft limitations.

7. Based on the recommendations in Tasks 1 through 6, specifically advise and make written recommendations for the associated policy and guidance.
8. Based on the Rotorcraft Bird Strike Working Group recommendations, perform the following:
    a. Estimate what the regulated parties would do differently as a result of the proposed recommendation and how much it would cost.
    b. Estimate the safety improvements of future bird encounters from the proposed recommendations.
    c. Estimate any other benefits (e.g., reduced administrative burden) or costs that would result from implementation of the recommendations.
9. Develop a report containing recommendations on the findings and results of the tasks explained above. The report should document:
    a. Both majority and dissenting positions on the findings and the rationale for each position.
    b. Any disagreements, including the rationale for each position and the reasons for the disagreement.
10. The working group may be reinstated to assist the ARAC in responding to the FAA's questions or concerns after the recommendation report has been submitted.

Schedule

The recommendation report should be submitted to the FAA for review and acceptance no later than 18 months after publication of this notice in the Federal Register.

Working Group Activity

The Rotorcraft Bird Strike Working Group must comply with the procedures adopted by the ARAC as follows:

1. Conduct a review and analysis of the assigned tasks and any other related materials or documents.
2. Draft and submit a work plan for completion of the task, including the rationale supporting such a plan, for consideration by the ARAC.
3. Provide a status report at each ARAC meeting.
4. Draft and submit the recommendation report based on review and analysis of the assigned tasks.
5. Present the recommendation report at the ARAC meeting.

Participation in the Working Group

The Rotorcraft Bird Strike Working Group will be comprised of technical experts having an interest in the assigned task. A working group member need not be a member representative of the ARAC. The FAA would like a wide range of members (normal category rotorcraft manufacturers, transport category rotorcraft manufacturers, and rotorcraft operators from various segments of the industry such as oil and gas exploration, emergency medical services, and air tour operators) to ensure all aspects of the tasks are considered in development of the recommendations. The provisions of the August 13, 2014, Office of Management and Budget guidance, "Revised Guidance on Appointment of Lobbyists to Federal Advisory Committees, Boards, and Commissions" (79 FR 47482), continues the ban on registered lobbyists participating on Agency Boards and Commissions if participating in their "individual capacity." The revised guidance now allows registered lobbyists to participate on Agency Boards and

Commissions in a "representative capacity" for the "express purpose of providing a committee with the views of a nongovernmental entity, a recognizable group of persons or nongovernmental entities (an industry, sector, labor unions, or environmental groups, etc.) or state or local government." (For further information, see Lobbying Disclosure Act of 1995 as amended, 2 U.S.C 1603, 1604, and 1605.)

If you wish to become a member of the Rotorcraft Bird Strike Working Group, write the person listed under the caption FOR FURTHER INFORMATION CONTACT expressing that desire. Describe your interest in the task and state the expertise you would bring to the working group. The FAA must receive all requests by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICANTION IN THE FEDERAL REGISTER.]** The ARAC and the FAA will review the requests and advise you whether or not your request is approved.

If you are chosen for membership in the working group, you must actively participate in the working group, attend all meetings, and provide written comments when requested. You must devote the resources necessary to support the working group in meeting any assigned deadlines. You must keep your management and those you may represent advised of working group activities and decisions to ensure the proposed technical solutions do not conflict with the position of those you represent. Once the working group has begun deliberations, members will not be added or substituted without the approval of the ARAC Chair, the FAA, including the Designated Federal Officer, and the Working Group Chair.

The Secretary of Transportation determined the formation and use of the ARAC is necessary and in the public interest in connection with the performance of duties imposed on the FAA by law.

The ARAC meetings are open to the public. However, meetings of the Rotorcraft Bird Strike Working Group are not open to the public, except to the extent individuals with an interest and expertise are selected to participate. The FAA will make no public announcement of working group meetings.

Issued in Washington, DC, on April 19, 2016.

Lirio Liu
Designated Federal Officer
Aviation Rulemaking Advisory Committee
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